

REMARKS

Claims 1, 4-5, 7-18, 20-24, 48, 51-52, and 54-58 remain in this application with claims 1 and 48 in independent form. Claims 2-3, 6, 19, 25-47, 49-50, 53, and 59-61 have been cancelled and claim 1 has been amended.

Claim 1 has been amended to clarify a typographical error appearing in reference to the chain extender range. Claim 1 had previously been amended to recite the range from 7 to 30 and the subject amendment removes the prior range of 5 to 50 that has previously been cancelled.

Applicant respectfully requests the Examiner to reconsider the prior §103 rejections of claims 1 and 48 for the following reasons.

35 U.S.C. §103 Rejections

Claims 1, 4, 5, 7-18, 20-25, 28, 29, 31-41, 43-48, 51, 52 and 54-61 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hager et al. (United States Patent No. 6,391,935), as being unpatentable over Lutter et al. (United States Patent No. 5,420,170), and as being unpatentable over Bleys (United States Patent No. 5,968,993).

Applicant requests the Examiner to reconsider the detailed and lengthy arguments (15 pages) set forth in the Response dated May 30, 2006 as well the Declaration from Mr. Raymond Neff, in view of claim 1 being directed toward a viscoelastic polyurethane foam and claim 48 directed toward a method of forming a viscoelastic polyurethane foam. Both claims 1 and 48 include the limitation that the foam has a glass transition temperature of from 5 to 65 degrees Celsius and a tan delta peak of from 0.40 to 1.75 and a density of from 2.5 pounds per cubic foot to 25 pounds per cubic foot when formed from the specific

combination of isocyanate component, isocyanate-reactive component, and chain extender in the amounts claimed.

Hager et al. is directed toward a viscoelastic polyurethane foam that is able to be formulated over a broad range of processing conditions and isocyanate indices as a result of incorporating a monol. Hager et al. does disclose using a chain extender; however, the chain extender is optional and is used only in minor proportions (see col. 4, lines 60-61). Further, each of the examples disclosed in Hager et al. employ the chain extender in minor amounts. Example 16 utilizes the chain extender in an amount of 2.0 parts by weight, Example 17 utilizes the chain extender in an amount of 1.0 parts by weight, and Example 19 utilizes the chain extender in an amount of 2.0 parts by weight.

Lutter et al. is directed toward a viscoelastic polyurethane that is used for structure-borne soundproofing. Lutter et al. does disclose using a chain extender broadly in an amount of from 1 to 60 parts by weight, preferably from 1 to 10 parts by weight (*see col. 9, lines 15-20*). In Example 3, the chain extender is ethylene glycol and is present in an amount of 2.8 parts by weight. Examples 5 to 8 use the chain extender in an amount of 6 parts by weight.

First, both Hager et al. and Lutter et al. do not disclose the glass transition temperature of the viscoelastic polyurethane foam. Second, neither varies or adjusts the amount of the chain extender to adjust the glass transition temperature of the viscoelastic polyurethane foam to correspond to the use temperature. Third, neither Hager et al. nor Lutter et al. disclose specific examples falling within the claimed ranges of the chain extender to provide the adjusted glass transition temperature. Fourth, neither Hager et al. nor Lutter et al. disclose the tan delta peak of the viscoelastic foam at the claimed glass transition temperatures and densities.

Referring specifically to Hager et al., the monol is being incorporated to allow for a range of processing of the viscoelastic foam and the chain extender is being added in minor amounts as a standard additive. Applicants are not claiming to have been the first to utilize chain extenders in viscoelastic polyurethane foams. Instead, Applicants are claiming to have been the first to utilize the chain extender in higher and various amounts to adjust the glass transition temperature to correspond with the use temperature of the viscoelastic polyurethane foam as claimed in claims 1 and 48.

Referring now to Lutter et al., the viscoelastic polyurethane foam is being used for soundproofing and the glass transition temperature is not disclosed. The glass transition temperature is inconsequential when the viscoelastic polyurethane foam is used for soundproofing. Since a user is not warming the viscoelastic polyurethane foam and the viscoelastic polyurethane foam is not supporting the user, the viscoelastic characteristics of the viscoelastic polyurethane foam are not being relied upon. Lutter et al. only discloses that the viscoelastic polyurethane foam can be used within a temperature range of from -20 °C to 80 °C. Even though Lutter et al. discloses a broad range for the amount of the chain extender being used, there is no disclosure of the chain extender being used in various amounts to adjust the glass transition temperature to correspond with the use temperature.

In summary, Hager et al. and Lutter et al. do not disclose the glass transition temperature and tan delta peak of the viscoelastic polyurethane foam adjusted by varying the chain extender in an amount of from 7 to 30 parts by weight based on the 100 parts by weight. Further, Hager et al. and Lutter et al. do not disclose, teach, or suggest the novel and unique limitation of adjusting the amount of the chain extender to produce the viscoelastic

polyurethane foam having a glass transition temperature that corresponds to the use temperature of the foam.

Bleys is directed toward microcellular elastomeric polyurethane foams, which does not exhibit viscoelastic properties. Bleys requires the microcellular elastomeric polyurethane foam to have a Shore A hardness of at least 85 (see col. 3, lines 23-29). Shore hardness is a measure of the resistance of material to indentation by a 3 spring-loaded indenter. The higher the number, the greater the resistance. Typically, Shore A hardness ranges from about 20 to about 95. Illustrative materials that fall within this range include printing rolls, door seals, solid truck tires, abrasive-handling pads, and non-spark hammers. As made clear by the Declaration, viscoelastic polyurethane foams are flexible and, as such; do not have a Shore A hardness falling within this range, if at all. Since Bleys is directed toward microcellular elastomeric polyurethane foams having a Shore A hardness of at least 85, one of ordinary skill in the art would not look to Bleys when manufacturing viscoelastic polyurethane foams.

Bleys does not disclose, teach, or suggest, an isocyanate-reactive component comprising a flexible polyol and an ethylene-oxide rich polyol having an ethylene-oxide group content of from 40 to 95%. Bleys also does not disclose, teach, or suggest, the microcellular elastomeric polyurethane foams having a glass transition temperature of from 5 to 65 degrees Celsius and a tan delta peak of from 0.40 to 1.75. Bleys does not disclose, teach, or suggest, the novel and unique step of adjusting the amount of the chain extender to provide the foam with a glass transition temperature of from 5 to 65 degrees Celsius corresponding to a use temperature of the foam. Bleys is silent as to glass transition

temperature of the microcellular elastomeric polyurethane foam and to any connection between the presence of the chain extender and the glass transition temperature.

Further, Bleys does not disclose, teach, or suggest, reacting the isocyanate component, the isocyanate-reactive component, and the chain extender at an isocyanate index of from 80 to 105 to form the foam having a tan delta peak of from 0.40 to 1.75 and having a density of from 2.5 pounds per cubic foot to 25 pounds per cubic foot. Even though Bleys discloses the microcellular elastomeric polyurethane foam having a density of less than 37.5 pcf, Bleys is silent as to a tan delta peak of the microcellular elastomeric polyurethane foam.

Accordingly, Bleys does not disclose, teach, or suggest each and every limitation present in claim 1 and 48 and there is no teaching or suggestion to modify Bleys as the Examiner suggests. Therefore, the §103 rejection is overcome.

Applicants have submitted a declaration from Mr. Raymond Neff, a Ph.D Chemical Engineer, who has worked in polyurethane chemistry for 15 years, regarding unexpected results. Specifically, Mr. Neff stated in paragraph 6 that even though lower amounts of chain extenders are known, the resultant effects on the glass transition temperature of the viscoelastic polyurethane foam when used in higher amounts was previously unexpected. Further, the foams formed in accordance with the prior art references did not produce the claimed glass transition temperatures and tan delta peak. The claims as recited in claims 1 and 48 are commensurate with the showing from Mr. Neff.

It is requested that the Examiner reconsider the substance and depth of the Declaration and identify those portions that the Examiner contends are insufficient in order to allow the Applicant an opportunity to properly respond to the Examiner's rejection. Merely reciting the requirements for a Declaration, without more, does not permit the Applicant an

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opportunity to adequately document, on the record, more elaborate responses to the Examiner's rejection.

Applicant notes the procedures regarding a response/an amendment filed under §116, which state that an amendment after final rejection may be made canceling claims or complying with any requirement of form expressly set forth in a previous Office Action. Also, an amendment and/or arguments placing the application in condition for allowance, by for example accepting allowed claims, or in better form for consideration on appeal may be admitted. As stated at MPEP Section 714.13, the proposed response/amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified.

In summary, it is respectfully requested that this §116 amendment be admitted because the Applicant has placed the application in better form for consideration on appeal. Applicant believes that no fees are due, however, if any become required, the Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account 08-2789.

Respectfully submitted

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